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ABSTRACT

This report is the third of a series covering the status of psychological research and activity in foreign schools and laboratories. It covers discussions with prominent psychologists in Latin America and provides information about representative work in process. Information on the following countries is reported: Mexico, Guatemala, El Salvador, Panama, Colombia, Ecuador, Peru, Argentina, Brazil, and Uruguay. Undergraduate and graduate programs in psychology, research areas, funding, professional personnel, and publications are briefly described for each of the specified countries. (Author/KSM)

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An Overview Of Psychology In Latin America

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Chicago Branch Office
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An Overview of Psychology in Latin America

INTRODUCTION

The course of development of psychology as a discipline in Latin America has been somewhat unspectacular, though there are indications that dramatic changes are in process. Until 1973, the largest university in Latin America with over 3000 psychology students had no separate Department of Psychology, it being a sub-department of the School of Humanities. Research support in both funds and time is generally minimal. Similarly limited has been the scope and range of study and application, with greatest interest being found in the areas of clinical and educational psychology. The outlook is brightened by two important factors, elements which appear to forcast more rapid growth and expansion. Foreign trained Latin American scholars are returning to their native countries with new ideas for modernizing and diversifying the teaching of psychology. This is inevitably leading to a more favorable situation in that the training of psychologists will rest increasingly in the hands of psychologists rather than with the polyglot of other professionals who served as interim instructors for the unseasoned discipline.

Writing about psychology in Mexico in 1968, Ribes-Iñesta (1) stated that "there is a new surgence of interest in establishing training, research, and service goals." During the same year, Ardila (2) provided a picture of the status of psychology in Latin America, concluding with the statement that "many aspects of the training and professional organization of psychology have to be improved in order to allow this discipline to attain its proper place in modern society." Both of these authors made accurate inferences concerning the course of psychology as seen in the six years since publication of their articles.

I was accompanied on this trip by my wife who provided valuable assistance in the interview procedures. Our reception was universally excellent and we were the recipients of the warmth and friendliness of Latin American hospitality, which is second to none. It was highly gratifying to find that ONR is so well known and respected for its support research, even in areas where military organizations are regarded with coolness and suspicion.

As in previous reports in this series (3) (4), I have no pretentions of wide coverage of the countries visited. Venezuela was to have been included, but activity there was interrupted by an automobile accident before sufficient information could be accumulated.

I should like to acknowledge the aid of Miss Patricia Rerucha, who transcribed all of the interview material.

MEXICO

The campus of the National University of Mexico (Universidad National Autonoma de Mexico) is possibly one of the most colorful in the world. It

sprawls over a huge area in the southern section of Mexico City and the kaleidoscope of foliage is almost matched by the colors of the buildings and the murals by O'Gorman. Less immediately visible is the burgeoning political influence of the ever-growing student population, a force which, in years to come, may again change the course of Mexican history.

Professor Emilio Ribes-Iñesta, primary source of information for this report, did his undergraduate work in psychology at the National University and did his advanced work at the University of Toronto. He returned to Mexico to teach at the University of Vera Cruz (in Jalapa), where he stayed until 1971, when he moved to his present position at the National University. Reflecting his own training and interest, Ribes spoke mostly of experimental psychology and the primary Mexican occupation with the experimental analysis of behavior. All research is constrained by lack of financial support; the interest in research programs in child development can be traced to the multitude of available subjects and the fact that expensive equipments are unnecessary. Some work is being done on stimulus control, memory and concept formation, cross-cultural research, and adaptation of psychometric instruments, but perhaps the fastest growing non-clinical area is applied social psychology. There has been considerable research in psychophysiology, but the emphasis has been on the physiological rather than the psychological aspects.

It appears that within the past few years there has been a substantial change in the course of psychology in Mexico, a change influenced by Mexican psychologists who have returned from their studies in other countries and have brought with them ideas for expanding the base of research and instruction. For the first time, for example, studies are being carried out in behavioral physiology, relating problems of behavior to problems of the nervous system. Until two weeks before the interview with Ribes, psychology was a sub-department of the School of Humanities, but it has since been established as a separate faculty, independent of any other school with its own administration. In the future, the teaching and conduct of research will be in the hands of psychologists. It is a step forward, for as Ribes put it, it is very difficult to explain to people from philosophy or education what are the needs of psychology. This trend towards autonomy is nation-wide and it is expected that within a few years all psychology departments will be independent.

It is the first step in a difficult struggle. Research support is very limited, generally consisting of inexpensive equipments and inadequate facilities. Professors are obligated to teach a certain number of courses and research must be carried out on a spare time basis. There is a new funding office in the federal goverment, the National Council of Science and Technology (Consejo National de Ciencia y Tecnologia), which has limited resources for supporting research. They have special priorities and are applying all funds to national problems such as marine research, studies of the environment, contamination, and so on. Although some projects have been submitted by psychologists, there being none on the council, all such were evaluated by non-psychologists. A campaign to include a psychologist on the scientific

committee is being developed, and this may improve the chances for future limited support.

Ribes sees the upsurge in research in social psychology as being attributable to a rising governmental concern and the upswing in goverment projects related to housing, public institutions, and community planning. Many interdisciplinary groups, including psychologists, are being established to study and recommend solutions for problems which stem from the unique circumstances of life and population growth and mobility in Mexico. As stated earlier, work in behavior modification is developing, particularly in the areas of education and mental health. This is seen as the practical solution to numerous pressing problems and is, in fact, Ribes own area of particular interest. For the past five years he has devoted himself to research on behavior modification with children. During his stay in Jalapa he worked with retarded children, developing programs in the academic skills of language and arithmetic. He also worked with token systems as reinforcers, trying to assess which are the social variables which make token systems effective. (Tokens are items redeemable for a reward.) Ribes is developing programs in generalized imitation and generative grammar from an operant conditioning point of view. Some projects in animal operant conditioning are going to begin in cooperation with William Schoenfeld, and the department is encouraging joint programs with foreign scientists. Computer-assisted instruction is still in its infancy in Mexico.

Ribes spoke of the plight of the universities in Mexico and the staff who seek to conduct research. The National University, largest in the country, is building two new campuses to accommodate the anticipated influx of students. It is estimated that within a few years there will be a quarter of a million in the National University system. There is also an increasing tendency to strengthen the state universities by increasing their operating budgets. According to Ribes, the university systems are growing at a pace which is too rapid; research facilities and teaching staffs are not being developed at the same speed. This condition is obvious to the planners and the National Association of Universities is promoting programs for expanding the numbers of scientific researchers and university teachers. There is a strong feeling that this planning is also inadequate, though the goals are commendable. The feeling persists that events are moving faster than are the plans to cope with them.

There are approximately 3000 psychology students at the National University and around 5500 in the entire country. These students concentrate on courses in psychology (about 90 percent of their credits) and the department offers graduate courses leading to the Masters and Doctorate degrees. The students themselves are bringing about large changes in the instruction of psychology. They have been pressuring for an expanded program, being dissatisfied with the more or less traditional emphasis on clinical and psychiatric instruction. There is a foreign scholarship program wherein students are supported by the university for study abroad, but they must agree to return to the university at the end of the foreign training to teach for a period

equal to the term of support. Under construction at the university is a facility called "The City for Research," a unit into which will be moved individuals who will concentrate on research without having teaching responsibilities.

The foreign scientists program mentioned earlier has been in modest operation for two years and will be expanded in the future. At this point it has taken the direction of encouraging international meetings; the first was held in Jalapa in 1971 on behavior modification. The second, chaired by Keller, was on education and was held in Mexico City. Bandura was Chairman of the 1973 meeting on Social Aggression and Delinquency. Also discussed at this time was a means for instituting sabbaticals from the United States to assist Mexican Universities develop their departments of psychology. This will be carried out by the National Council for Teaching and Research in Psychology, an organization formed by the 14 universities in Mexico who have departments of psychology. This young organization holds forth promise for encouraging contacts across the various departments to exchange ideas and information. It meets four times a year, each meeting held at a different school, and affords students and faculty alike the opportunity of meeting their fellows.

Ribes reiterated the strong influence exerted by students on the programs and operations of the universities, a situation which might be regarded as a mixed blessing. For example, in some schools at the National University there is a self-governing structure wherein students, professors, and workers form a council that is essentially the governing body and operates independently of the appointed officals. Thus the university authorities would hesitate to appoint a dean known to be unpopular with the students. The students feel that the university was formed to serve them rather than the administrators and that they should have the deciding voice in decisions affecting their welfare. The problem is to maintain a reasonable balance so that the administrators are able to conciliate the students without undermining their own authority.

There are strong indications that interest in psychology in Mexico is increasing among students and administrators alike. As stated, research support is very limited both in terms of funds and allocation of time from other duties, but the outlook is quite optimistic. We were able to see here the emergence of a phenomenon which seems to herald a higher level of training and research, and this was repeated throughout Latin America. Psychologists are gradually taking over the teaching of psychology, whereas formerly, due primarily to the lack of native professionals, the task fell to educators, sociologists, physicians, mathematicans, political scientists, and others. It is to be expected that psychological research will grow under this new condition. Another favorable sign is the drive to encourage foreign sabbaticals, which indicates a willingness to exchange ideas and approaches. It is likely that many North American psychologists will take advantage of this open door policy for scientists, to mutual benefit.

GUATEMALA

Dr. Robert Klein, Director of the Division of Human Development of the Institute of Nutrition of Central America and Panama (INCAP), provided most of the information on psychological research in Guatemala. Dr. Klein earned a Masters Degree in speech pathology and audiology at Cornell and completed his Doctorate in child psychology at the Institute of Child Development at the University of Minnesota. His first position was that of staff psychologist at INCAP where he initially worked primarily in the development of tests that would be valid and appropriate for evaluating the intellectual and social development of preschool children in isolated rural villages in Guatemala. After some two years, he moved up to the post of Division Director, where his duties cover planning, administration, and fiscal responsibilities, as well as research.

There are four universities in Guatemala, the largest of which is the National University, San Carlos. The Department of Psychology, in the School of Humanities, has a few educational and clinical psychologists who were trained in the United States or in Europe, but most are graduates of local departments. Little research is conducted beyond these, general instruction being the major focus of the department. The second largest university is the Catholic University, Rafael Landivar, which also has a Department of Psychology with an emphasis on instruction. The University del Valle is a private university which has a post graduate program leading to the Masters Degree in Social Science, being a combination of sociology, psychology, anthropology, and economics. The program is directed by Dr. Alfredo Mendez, a Guatemalan anthropologist, trained at the University of Chicago. The Vice-Rector is an educational psychologist from the United States and some research in educational psychology is also conducted at the University. The fourth university has no program in the social sciences.

The local office of the Organization of American States conducts some survey research, primarily dealing with attitudes and opinions, in which they are assisted by a staff member from the National University.

What is probably the most exciting and advanced research is being carried out by INCAP. The Institute is the regional representative of the Pan American Health Organization, a United Nations affiliated group charged with developing health programs in Latin America. INCAP was founded in the late 1940's as the initial attempt at establishing a regional nutrition institute, and was the first regional effort in Central America or Panama to focus research on a vital social/health problem, in this case nutrition. The Institute has expanded since its inception and now consists of ten divisions. In addition to conducting studies in human development, it is concerned with such areas as microbiology, physiological chemistry, physiology and the physiology of malnutrition, food sciences, food quality control, agricultural sciences, and statistics. The administrative funding comes in part from the Pan American Health Organization and in part from contribution quotas from the member nations. Most of the research funding is provided by grants and

contracts from private institutions and foundations as well as several United States agencies including NIH and the Department of Agriculture.

The primary mission of the Division of Human Development of INCAP is research on the effects of malnutrition on human development, work which was instituted as the result of the award of a National Institutes of Health contract in 1965. The program began through a longitudinal study of the effects of malnutrition during pregnancy and postnatally and its relationship to physical growth and mental development. In addition, the Division has its research activities funded by the National Science Foundation, the Grant Foundation of New York and the Rockefeller Foundation. The yearly research budget of the Division is approximately $800,000. There are some 150 personnel, 15 of whom are professionals in fields ranging from pediatrics, biochemistry, and nutrition to physical and cultural anthropology and psychology, with four Ph.D. psychologists working full time. The longitudinal study, begun in 1969, has to date encompassed four waves of newborns, and represents the essential core of the Division research activity. Four entire villages in eastern Guatemala are under study and all of the children born in these villages are integrated into the subject population (actually before birth) and are studied until they are seven years old. All of the villages receive medical care and half of them are provided with food supplements beyond their normal diets. Women and their off-spring are studied from time of conception or as soon as it is known and children are followed through pregnancy and beyond until, as stated earlier, they reach the age of seven. A wide range of psychological and biomedical nutritional variables are studied, including evaluation at birth with systematic estimates of intellectual performance at periodic intervals. In addition the Division is conducting studies on cross-cultural differences in intellectual development in isolated Mayan speaking Highland Indian villages. Here the interest is in exploring some of the cultural and social factors that play a role in human development.

All of the research has a very strong developmental orientation and the primary focus of Division research converges upon environmental factors, whether social or biomedical, and their effects on human development. This goes beyond physical growth and psychological development, and seeks to understand the influence of social organization, the economic factors, and the roles these play in the organization and performance of everyday life. The psychological evaluation process begins with an evaluation of the newborn at three days after birth. The initial neurological examination is carried out at 15 days, and at the age of five months the infants begin the systematic series of psychological testing that runs through the seventh year. They are examined and tested again at ages 15 and 24 months and on their birth dates from three through seven years they are evaluated on an extensive preschool intellectual development battery that evaluates memory perception, and language development and learning ability.

Klein spoke of his feelings on how the research will expand in the near future. There will likely be more study effort on social organization and its biological implications for child spacing, and the role of nutrition in child

spacing and family planning, with a continuing expansion in cross-cultural studies of intellectual and social development. All children in the study villages up to age seven have been evaluated since 1969, and thus cross-sectional as well as longitudinal data are available. Some important findings have already emerged, though the data accumulation and analysis are still in process.

It has been found that providing medical care and adequate diets to women during pregnancy results in a significant reduction in infant mortality rates. Likewise, the birth weights of infants were substantially increased through maternal supplementation during pregnancy. Some interesting interrelations among nutrition, child health, and child spacing emerged. For example, women who are provided with better diets have heavier infants with reduced mortality risk. They lactate longer and therefore their children's nutritional condition is improved. Post partum amenorrhea is longer for women who lactate longer and thus it appears that improving the nutritional condition of the mother during pregnancy not only improves the infant's chance for survival, it also lengthens the period between conceptions by promoting longer lactation. The women who lactate longer are less likely to become pregnant immediately following cessation of lactation.

The preschool children who participate in the supplementation programs achieve growth rates which are generally similar to those of North American and European children of comparable ages. This indicates that ethnic differences in stature are minimal when compared with such variables as social class or poverty. In response to a question, Klein drew a comparison to this situation and what had been taking place in Japan. He pointed out that in addition to improved diet, the Japanese had made tremendous improvement in environmental sanitation, improvements foreign to the villages in Guatemala.

The relationship between nutrition and mental development is somewhat more complex. In the earlier ages they are finding that social and nutritional factors both play a role in psychological test performance. In the age range from three to seven the relative importance of social, environmental, and nutritional factors on mental development test scores appears to vary with age, sex, and type of test. For example, measures of language development appear more sensitive to social factors than to nutrition, as might be expected from the findings in other cultures. Short term memory measures are more or less equally predictive by social class and nutritional status in that in a regression analysis where the dependent variable is performance and the independent variables are indices of nutrition and social class, both will account for about equal parts of the variance. In contrast, simple measures of perception are more heavily affected by nutritional than by social factors. Girls appear to be more strongly influenced by the immediate social environment than boys. Klein and his colleagues are presently in the process of analyzing and summarizing the findings of the first four years of the longitudinal study and are as yet unable to make categorical statements concerning the relative importance of nutrition and social environment or the various interrelationships between them and the age and sex of the child and the test used.

The Division headed by Klein consists of a strong interdisciplinary research group. As stated earlier, the 15 professionals, either Ph.D.'s or M.D.'s, range widely across the spectrum of biological and social sciences. The present longitudinal study will ultimatley terminate and there is a strong reason for keeping this well balanced and highly professional team together. The long range plan is to develop three general areas beyond the present enterprise. First is the study of biological and social factors in population growth and control. The second general area deals with cross-cultural studies in psychological, social-psychological, and sociological development. Finally, the third area covers health, nutrition, and biological factors in human development and social organization. This will likely lead to the formation of sub-sections of the Division with each group actively seeking independent financial support. Klein looks forward to an increasingly active and productive future, pointing out that despite the general cut-back in research support, his budget has risen for each of the past five years.

In response to a question as to the attitudes of the government and the people towards the research, Klein pointed out that INCAP is a well known and highly appreciated organization in Latin America. It has developed low cost high protein food supplements which are commercially available to augment the inadequate diets of many Latin Americans. INCAP was also instrumental in having legislation passed in most of Central America for the mandatory iodization of salt for elimination of endemic goiter. The longitudinal project provides a number of vital but otherwise unavailable services to the villages including medical care and food supplements, and the researchers are highly regarded as benefactors among the subject populations. The government has likewise maintained a favorable and collaborative attitude, recognizing the importance of the work in the pursuit of programs to advance the peoples in impoverished areas. Finally, the study, though largely supported by North American funds, is basically a Pan American effort and most of the employees are Latins. No one knowledgeable of the conditions of the poor of Latin America can fail to recognize the value of such studies in developing programs for those who have no way to go but up.

EL SALVADOR

At the time of this visit the National University (Universidad Nacional de El Salvador) was closed as the result of a reaction to the disruption of activist students and faculty. The primary source of information about the status of psychology in the country came from Dr. Rodolfo Semsch, himself a graduate of the National University. The School of Psychology at the university was established by Swiss psychologists Stahel and Watzlawick with a strong psychoanalytical orientation. The course of instruction was basically clinical but deteriorated at the departure of the founders after six years. This was followed by a period when psychology fell into the hands of newly-graduated students, it being next to impossible to attract quality

professors from foreign countries. Semsch graduated from the university in 1960 and obtained a position as a psychologist in the Department of Rehabilitation of a local hospital, the first time that there had been a psychologist in any non-teaching institution in El Salvador. At the same time he entered the faculty of the University and was subsequently awarded a scholarship under the joint sponsorship of the British Council of Education and the University of El Salvador. Entering the University of London Maudsley Hospital, Semsch did his post-graduate and doctoral work under Professor Hans Eysenck and Dr. Franz Morgenstern. He also did statistical research and received advanced training with Dr. Patrick Slater. Upon his return to El Salvador he was appointed Director of the Department of Psychology and attempted to institute changes which would elevate the level of the department. The highest degree offered was the Licenciatura (equivalent to the M.A.) and it was not possible to institute a doctoral program because of the inability to attract high-level staff. Behind this condition lay the reluctance of the administration to provide adequate financial support. Circumstances led to Semsch's leaving the University and being replaced by another psychologist who remained for one year. He in turn was followed by a psychiatrist, who presumably held the post until the closing of the university.

As to research at the university, it appears to have been practically nonexistent. The demands of the administration allowed faculty no time for other than instructional duties, and even had time been available, there was no financial support for purchasing even the most simple equipment. At the time Semsch returned, the university was isolated due to the political situation and no outside funds from industrial or governmental sources were possible. He himself did some psychometric research, primarily in standardizing a Spanish version of the Eysenck tests.

There are some 30 psychologists presently working in El Salvador, most of them in the field of school psychology Semsch drew a bleak picture of the difficulties of attempting to specialize and the resulting dearth of research. Thus the school psychologists will be concerned with testing, counseling, therapy, rehabilitation, and anything that might come along. Semsch himself has three primary activities. He has a clinic for testing and therapy and he has translated various test instruments into Spanish. He is also the psychologist for the Escuela Militar, where are trained all the military officers for the country. Although under the command of the army, officers of all three services undergo a four year (soon to be extended to five) period of instruction and training here. Semsch is the first and only military psychologist in the country. His initial duties were primarily instructional but this has generally changed and most of his time is spent in counseling the cadets (cadetes) and making himself available for consultation. In instituting psychological services at the Escuela, Semsch has encountered some resistance to expanding his program, partially due to the apparent impatience of the military with programs that appear not to bring immediate results. This attitude may be changing for the better. The writer had the

opportunity of spending time with Colonel Julio Gonzalez Palomo, an intelligent and progressive officer, Commandant of the School, who expressed considerable interest in advances in psychology, particularly in such areas as computer assisted instruction, decision making, individualized testing, leadership training, human factors, and organizational research. He was very frank in discussing the problems of acquiring adequate funding for a full-fledged program, but it appears likely that he recognizes the potential benefits.

Semsch is able to do some testing and plans to develop a battery for predicting the success of students in their military careers. Although he has been collecting data, he has not yet developed the predictive criteria of a good officer. Colonel Palomo has instituted regular though informal staff meetings wherein the non-commissioned officers (instructors) meet with their groups in a sort of "rap" session, where the students are able to verbalize their feelings, complaints, or whatever without penalty or recrimination. No officers are involved in these sessions.

Semsch seems to typify many Latin American psychologists who simultaneously pursue a variety of tasks. He also provides psychological services for the Banco Central de Reserva, whose president is Sr. Edgardo Suarez Conteras, an engineer with a strong feeling for personnel problems. The position, possibly the first of its kind in the country, was established through their joint efforts and has allowed Semsch the opportunity and facility to print psychological testing material. His basic responsibility in the bank is to meet with and counsel employees. He has expanded this so that part of his time is spent in developing a battery of tests to use in improving the selection procedures now practiced. Supervisor, management, and executive training approaches as applied to bank personnel are also being considered for future implementation.

In brief recapitulation, there is very little psychological research being undertaken in El Salvador. The National University is closed (May 1973) and the Universidad Catolica "Jose Simeon Canas," the other leading university, has no research program. Applied psychology, through the efforts of individuals such as Semsch, is making slow but steady progress. The Salvadoreans appear to be an industrious and progressive people and it is likely that all professions will move ahead once other everyday problems are resolved.

PANAMA

The University of Panama, the National University, is open to all applicants who pay a token tuition. Formerly situated in confined quarters in the old city, it is now beautifully located on a lush and modern campus overlooking the town. Accompanied by Dr. Carlos Malgrat, Head of the Department of Psychology, the writer visited with Dr. Gustavo Garcia de Parades, the Vice Chancellor, who showed a keen interest in the ONR program. Problems of research support in newly developing countries were discussed and

Dr. Garcia spoke of the emphasis upon the immediate problem of providing instructional and other services for the burgeoning student body. The university had previously accepted all comers, but is now at the stage where it is bursting at the seams with some 18,000 students. Dr. Malgrat has been given the responsibility for a new program which is designed to limit future entering classes to those most highly qualified. Tests of intelligence, personality, aptitudes, and interests will be administered to all potential students and they will receive psychological counseling to assure that they are entering fields of studies best suited to them.

Dr. Malgrat received his education at the University of Havana and has been a member of the Faculty of the University of Panama since 1945. Seven years ago there were only two psychologists in the country and their numbers have increased to about 40 at present. During the 13th Interamerican Congress of Psychology held in Panama City in 1971, a Panamanian Psychological Association was formed with Malgrat as President. The principal areas of psychological interest and activity in the country are in clinical and educational psychology and guidance, though there is a small amount of work going on in industrial and social psychology. Most of the psychologists work for institutions, primarily in the university and in the Ministries of Education and Health.

Malgrat echoed the by now familiar and frequently heard complaint of no funds and almost no time to conduct research. The emphasis is essentially upon providing services and the pressures are such that any research activity imposes a tremendous burden and represents a huge effort on the part of the researcher. Aside from the work being undertaken by Malgrat, the only psychological research deals with the translation and standardization of psychological tests, and this is accomplished to achieve a superior level of selection, guidance and therapy. Malgrat has managed to carry out studies in a variety of areas though his primary interest lies in neuropsychology and particularly the genetic transformation of the conditional reflex. He considers genetic transfer to be the critical link in the development of essential characteristics of people who must travel in space or work in undersea habitats for extended periods. He cited the example of the failure of the reflex system and the ultimate death of the animal in one of the experimental space projects. It is his feeling that successes in chemical memory transfer and in the effects of prenatal influences in learning support his contentions.

Another project deals with the behavior of the Bradypus Tridactylus, the three toed sloth found in Panama. Malgrat sees a relationship between the normal behavior of this animal with the catatonic state of the disturbed human. In conjunction with Dr. Victor De Sanua he is also studying the connection between epilepsy and schizophrenia. Another research project deals with cortical modifications under hypnosis as shown in electroencephalographic records. Malgrat spoke of a paper on an experimental study of consciousness which was to be presented at the Fourteenth Interamerican

Congress of Psychology in São Paulo. His latest interest lies in the interpretation of several tests (including the Rorschach) according to the cortical function of reflexology.

In response to a question concerning the future of psychology and especially the potential for research growth in Panama, Dr. Malgrat feels that there will be an upsurge of interest in neuropsychology and a slow development in this field. As to research, it is his belief that the young professional psychologists who are interested in research will bring about a reversal of the present attitudes and limitations, and that research support will increase as a result.

COLOMBIA

Dr. Ruben Ardila, a graduate of the National University of Colombia in Bogota, took his advanced work in experimental psychology at the University of Nebraska. After receiving his Ph.D., he returned to become Head of the Department of Psychology of the National University where he remained for two years, moving in 1972 to a similar position at the University of the Andes, his present post. At present he is the President of the Colombian Federation of Psychologists, which was founded in 1955 and now numbers some 650 professional members. Since this visit, Ardila has been elected to the Presidency of the Interamerican Society of Psychology. He is the Founder and Editor of the Latin American Journal of Psychology.

Psychology as a discipline is 25 years old in Colombia, having started at the National University with an institute established by a Spanish Psychologist, Mercedes Rodrigo Bellido. The institute of which she became head is reputed to be one of the first of its kind in South America. In 1950, embroiled in a controversy over using psychological testing for personnel selection, she was discharged and forced to leave the country. Nevertheless, the training of psychologists has continued without interruption since 1948. In 1957 a Faculty of Psychology was formed, and in 1965, when the entire university was reorganized following a modern model, the present Department of Psychology was established. During the same year the Javeriana University established a Facility of Psychology. The University of Valle in Cali also has a psychology department with a strong orientation towards counseling.

Psychology in Colombia appears to be well accepted by the government, and at the time of this visit, the Colombian Federation of Psychologists had been successful in obtaining legal recognition of psychology as a profession. At that time a bill modeled after the advanced legislation of Brazil was before the President awaiting his signature. The Federation is patterned somewhat after the American Psychological Association, consisting of Divisions, principally experimental, social, industrial, clinical, and educational. The approach in the universities is to limit the number of students allowed to enter psychology in order to assure a favorable market with more positions

available than psychologists to fill them. There is a five year training period for the professional degree (psychologist) and students may go on to the Masters level. Some students choose to go abroad for further studies, especially to the United States. The course of studies in Colombia was described as rigorous with a concentration on psychometrics, testing, clinical, industrial, social, educational, and experimental, the latter being heavily concerned with operant conditioning. The influence of Skinner is felt strongly in the courses of instruction and in the general approach to psychology.

As stated earlier, there is a favorable market for the graduates, who are almost equally divided as to sex (about 55 percent male and 45 percent female). Upon receipt of their professional degrees, many enter the government service with a large number working for the Institute of Family Welfare. A lesser number accept teaching posts, and about 5 percent go into private practice. Industrial psychology is only moderately advanced, though in Bogota there are 48 psychologists working as such in industry, certainly a respectable number.

As to his own research interest, Ardila is primarily concerned with general principles of learning. One study is directed at understanding early learning in rats wherein some groups are isolated in darkness and others are raised in enriched environments, e.g., they are perceptually enriched through exposure to colors and simple and complex designs. He is examining the problem-solving characteristics of these groups as compared to controls raised normally. Skinner boxes are widely used in other studies of simple and complex discrimination. In other research he is studying the psychological processes of individuals who were born blind and later recovered their sight in adulthood. He is basically interested in determining how they learn to see as compared to the development of cognition and vision in children. In other areas, Ardila has developed an attitude scale towards Jewish people. All of the members of the Department of Psychology at the Universidad de los Andes (Castro, Arcila, Barrera, Marin, etc) are engaged in some research in such areas as operant conditioning, behavior modification, fertility, family size, pre-delinquent children, and poverty. Support for some of this work comes from the Colombian Science Foundation.

The Department of Psychology of the University of the Andes has at the present time the best psychology library in the country and the most advanced psychological laboratory used for research and teaching. Financial aid comes from the Dutch government, and it is used to support the laboratory and the library. The most important journals and books in psychology published in the United States and elsewhere are found in this library. The laboratory is dedicated mainly to basic research in operant conditioning.

At the Faculty of Psychology of the Javeriana University there is work in process done by Dr. José Antonio Sánchez, Dean of the Faculty, and his staff. At the National University, in spite of its political and organizational problems, Dr. Adolfo Mansilla and three other psychologists have been able to carry on research in several areas, especially in counseling.

Psychology in Colombia is in the hands of a group of young men (Sánchez, Ardila, Arcila, Castro, Barrera, Marín, Mansilla) who are concerned with the scientific and the professional aspects of the discipline. They wrote the bill of legal recognition of psychology in the country, are directors of the Departments of Psychology, and have published books and articles, many of them in U.S. journals.

The original inspiration for the founding of the Centro Educacion y Recuperacion Nutricional (Nutritional Recuperation and Education Center) in Cali, Colombia came from Dr. Leonardo Sinisterra, who was one of the founders of the Medical School at the Universidad del Valle, reputed to rank among the best in Latin America. Dr. Sinisterra, who received his M.D. at the Central University of Madrid, spent an additional four years at Harvard and Northwestern, where he worked in the field of nutrition. The founding of the Centro grew from his recognition of the unsoundness of only providing emergency treatment for the undernourished poor, who soon regressed after being returned to the home environment. He also noticed that the slum children brought into the hospital with various diseases almost invariably suffered from malnutrition. They gained well under hospital care and food, but returned in a few months again suffering from the level of malnutrition common to the barrio (slum). Sinisterra established a Department of Nutrition at the Medical School to advance education in nutrition among medical students and to show that it was a vital consideration in the treatment of the deprived patient. In order to support his ideas practically, he developed a formula, called Colombiharina, a mixture of soy beans and rice, which was palatable, relatively inexpensive, and provided the basic nutrients for human survival.

The Centro project was organized in 1967 with children from the barrio between the ages of three and seven. It was quickly determined that as the age of admission to the program increased, the pay-off decreased, emphasizing the need for concentrating on younger children. A primary role in establishing and operating the Centro fell upon the shoulders of Dr. Harrison McKay and his wife Arlene, who were brought by Dr. Sinisterra from Northwestern; he a member of the faculty and she a graduate student in psychology. Dr. McKay pointed out how little is known about the relationship of nutrition and education and their effects on survival in society. It seems that the McKays, who orginally entered the program for a brief period, became so heavily involved that they were still there years later at the time of this visit. After a few pilot projects, the Centro was able to attract the interest of the Ford Foundation, and support became available for the establishment of an experimental program. The entrance age for children was arbitrarily set at three, it being felt that this was optimum for assuring benefits from the program while allowing for the use of reliable testing procedures. The planning implied a long range commitment, as the ultimate criterion would be how well the children fared in society years after exposure to the program.

The project is designed so that four groups of 60 children each remain in the program for periods varying from one to four years of pre-school experience combined with health care and full nutritional supplementation. Another group of 60 receives food and health care only. The project started with 360 children and those receiving the combined treatment come to the school for about 180 days during the year between the hours of nine in the morning and three in the afternoon. Four hours of the period are spent in programed activities and the balance of the time in health care, feeding, rest, play, and other activities not directed specifically towards their mental development. The children who receive food without exposure to the school are supplied by having a member of the family pick up enough each week to supply the entire family. The control group receive nothing but are periodically checked for health and mental development; all of the children get this same periodic evaluation. An additional comparison group consists of upper class children of the same age as the experimental children, but coming from fine backgrounds. Most of them attend excellent foreign speaking schools though one requirement is that they are from Spanish speaking homes.

At the end of the first year there was a substantial improvement in the development of the treated children. The children who had received the concentrated program approximated the upper class group, who previously had been found superior in every measure of health and intellect (in fact, about one and a half standard deviations more advanced on most variables). McKay cautioned that the data analysis was still in process, and they were engaging in some factorial analyses to see if there are specific factors where the children progress at different speeds. He anticipated that the data would also provide insights into the various effects of genetic versus environmental factors.

Despite the fact that the village children are being provided with a program of educational stimulation and health support, there are certain drawbacks and limitations. Most of these can be traced to the paucity of funds available. There is, for example, a scarcity of equipment and educational material. Also, the personnel who work most closely with the children are not professional educators. There are, in fact, few well trained personnel available even if they could be adequately paid, but it appears that the workers go far in making up for their lack of training by their obvious ardor and interest in the program. Another limitation lies in the time that the children actually participate in the program, e.g., five or six hours a day, five days a week, with time out for fiestas and such which occur with great regularity. The children live at home where infections spread easily among all children, accounting for loss of some additional time through illness.

McKay asserted that they are beginning to look at the data from the second and third year children, but that it is too soon to form conclusions. What is clear, however, is that the control children who remain in the slum home environment do not move ahead as do those from the experimental village. The criterion measure will be how the children will do in the regular schools they attend. The public schools will admit only those aged seven

or older, and the first group entering will have been in the experimental program for one, two, or three years. During this year they hope to be able to determine how the children respond to the educational demands and soon they may have data on the effects of the various entrance and exposure schedules. As was pointed out, the children are lively, alert, and highly motivated. They interact with their fellows and have developed what appears to be well structured social relationships. The critical aspect will be to follow through longitudinally and see how they respond in school and other situations. It appears that normally only about half of the barrio children enter school and of those only half survive the first two years. Under usual circumstances not one of these children would enter a university. It is not possible to predict what will be the course of the experimental group, but it will be closely observed. On the basis of the longitudinal data it should be possible to tell whether the observed changes are substantial or merely transient. Whether the project will continue the time required to develop the entire program depends largely upon the support it receives.

As stated earlier, most of the funding comes from the Ford Foundation, with a relatively lesser amount being supplied by the Colombian government. Though for the first two years the McKay's were reimbursed by the Council for Intersocietal Studies at Northwestern University, this source has dried up and they are presently seeking other support. Dr. Sinisterra has accepted an important government post in the Ministry of Health, and the Colombian government has approached him and expressed a great interest in expanding the Centro concept. McKay sees this as a mixed blessing, as it assumes that the model being used is the right one. He feels that there are numerous other questions and concepts that should be explored before it can be said that one is the optimum approach. For example, what is the impact of the family upon these children, and vice versa? What would be the effect of involving the entire family group in the educational and social aspects of the program? What is the optimum age to involve children in the program? McKay feels that these and other questions might go by the board if a major wide-spread program is instituted, but he also recognized the danger to the entire program if support is not forthcoming.

Although the Centro, now known as the Human Ecology Research Station, began as an extension of the university, it has since become autonomous and is governed by a board of directors composed of professionals including Sinisterra and the McKays. The McKays see the Research Station as a vital laboratory wherein Colombians and other Latin Americans can be trained and can conduct high level research. Dr. Sinisterra expressed the hope that the Cali establishment would serve as a coordinating center for a series of such operations staffed by Colombians as well as foreigners. He recognizes that the issues go beyond education and nutrition and are actually problems of individuals and groups within a total environment. It is his hope that the training center will merge individuals from various disciplines into a coordinated unit with each an expert in his own field but all acutely aware of the total problem.

ECUADOR

Contact with the university community in Quito, Ecuador, was through Dr. Edmundo Carbo and was limited to a presentation made by the writer to interested faculty and staff on the current ONR research program.

Lcdo. Luis Valverde Lopez is an attorney who holds the post of Executive Director of the Fulbright Commission in Educador. Involved in the exchange of scholars, Valverde is knowledgeable in the process of education in Ecuador and was able to provide basic information. The educational system, patterned after the French, is under the control of the Ministry of Public Administration. As early as 1905, the President of Ecuador, Alfaro, instituted a policy of free education. The budget for education is now second only to defense. State schools and universities receive total support from the government, and the private institutions also get some financial assistance. Instruction itself is under the cognizance of the Ministry of Public Education and the organization is presently attempting to introduce wide educational reforms. The intent is to establish more pragmatic guidelines in keeping with the needs and economy of the country, which is slowly changing from agricultural to small and medium-sized industry.

One of the sensitive problems relates to rural education. There are some 8000 unemployed teachers who do not have job opportunities, even though the country schools are sadly understaffed. In fact, some rural schools have been forced to close due to the lack of trained and willing personnel. A recent law sets 14 years of schooling as the minimum training for eligibility to teach elementary education.

Valverde cited some factors which brighten the picture for education in the future, particularly a U.S. Program to make new text materials available at all levels, institution of some Montessori experimental groups, and updating the university structure. Most schools have numerous and diversified departments and there are now about 300 trained university professors active in higher education. Psychology is still somewhat elementary and almost completely clinically oriented, but the faculty has many U.S. publications available and is trying to move from basic theoretical into more diverse applied areas. There is an urgent need to train good professional people. As indicated above, though there are a fair number of professors, only about 15 percent teach full time. The rest find it necessary to supplement their salaries through other employment. The Fulbright program seeks to help alleviate the problem and provide needed expertise by undertaking a student exchange program. Of particular value is the sending of Ecuadoreans to study in the United States and they hopefully bring back new ideas and approaches. It appears, however, that they occasionally find themselves less than adequately trained in basics to survive the competition of top notch foreign schools.

Dr. Frederick Turk, a member of the Papal Volunteers for Latin America, had taught for a year and a half in Peru before returning to Catholic University to continue his graduate studies. When an opportunity arose to return to Latin America, he accepted an offer from the Organization of American States (which is funding a study of the effects of the educational reform of 1963 on the educational system of Ecuador) and moved to Quito as a specialist in education. His task appears to be to plan for data accumulation and analysis, though initially he is serving as a consultant to the Ecuadoreans in the Ministry of Education. The basic study seeks to determine what changes are taking place in both educational quality and quantity at the primary and secondary levels. Enormous problems are concerned with the repetition and dropout rates. Of 1000 students who begin the first grade, 197 finish the sixth grade in six years (1963-69). The year of greatest desertion is the first (about 30%). In terms of quality, the study will attempt to evaluate the level of knowledge of sixth graders and this will also be extended to measuring students in junior high school.

A new five year plan has been instituted by the government which is designed to extend the basic period of education from six to nine years, in other words to include junior high school in the category of primary education. Also included in this second reform is a continuous appraisal of the primary thrust of education, moving from the more abstract to the more practical. Education at this level will thus attempt to relate to the forces which influence everyday life, hopefully providing skills which can be used in earning a livelihood.

Turk spoke of the humanistic tradition of Latin America, a tradition held in high regard by most Latins, a view which he strongly supports. In Ecuador an attempt is being made to mix the humanistic with the technological so that an individual can be trained to perform physical labor without being degraded. Included in the new approach is a program designed to attract more students and to keep them from dropping out. At present, an effort is underway to reduce the numbers of failures, an approach which has caused some consternation among traditionally minded teachers. These teachers are at a loss to know how to provide the necessary motivation to substitute for grades. Turk estimates that about 92.9% of primary teachers have high school degrees and that there exists an excess of primary school teachers in the country. Of the secondary school teachers, 13.3% are professionally trained teachers. The rest are professionals in other areas; i.e., law, medicine, accounting, etc., or are simply high school graduates.

It appears that the level of pedagogy in Ecuador is not very high, and this is one of the problems that is under study by the research team. Their first task is to accumulate data so that changes can be evaluated over time. The first check point is presently at hand with an analysis of the reform of 1963. Hopefully, the results will be utilized to improve the effectiveness of the new 5 year plan for years 1973-1978. Turk sees as one of the most pressing and immediate needs, the training of investigators qualified to carry out the research project, and he has instituted short-term courses in statistics

and experimental design to build up a core of researchers who will be able to adequately carry the study forward.

PERU

Dr. Carlos Alberto Seguin, born in Peru, accompanied his politically minded father into exile in Argentina. He attended the University of Buenos Aires, received his medical degree there, and remained in Argentina as a practitioner of internal medicine and later psychiatry. He accepted a position at the Institute of Living in Hartford, Connecticut and was subsequently appointed research associate in psychiatry at Columbia University. A new political climate in Peru resulted in his return to Lima, where in 1941 he was instrumental in founding a hospital for social security blue collar workers. At his insistence, the authorities created a Department of Psychiatry, the first of its kind in any Latin American general hospital. Dr. Seguin has also been elected President of the Interamerican Society of Psychology and organized the VIII Interamerican Congress of Psychology in Lima.

The Department of Psychiatry was unique in its realization, and it also enabled Seguin to put into practice a completely new approach to psychiatric treatment and medical training. Instead of being isolated behind bars, the psychiatric ward was a component of the hospital and indistinguishable from the general or other specialty wards. Regarded a pioneer in psychosomatic medicine in Latin America, Seguin wrote the first publication in Spanish on the topic, "An Introduction to Psychosomatic Medicine," which was later translated into English and French. At the same time he started a journal, "Psychosomatic Studies," also a first for Latin America.

After 31 years as Head of the Department of Psychiatry, Dr. Seguin retired from the hospital. As Head of the Department of Psychiatry at the University of San Marcos, he subsequently established a Department of Psychological Sciences to institute a unique system of training for medical students, an approach which is consistent with his basic premise that a medical practitioner should be whole-man oriented. The primary thrust of this approach is to assure that first year (and subsequent) medical students incorporate psychological knowledge in parallel with somatic aspects of medicine. The five year medical course stresses medical psychology the first year, psychopathology the second, psychiatric pre-clinic the third, psychiatric nosology the fourth, and in the final year, the psychiatric clinic. He published a book, "The Psychological Training of the Medical Student," which explains the procedures and techniques. During the first year, the fledgling medical students attend lectures which are followed by small (five student) guided discussions to assure that they fully comprehend the material. These small groups form psychodynamic units which, from the beginning, concentrate on meeting live patients, rather than on working almost exclusively with cadavers or animals. They start by interviewing the patients and these interviews fall into three stages. During the first stage,

the intent is to evaluate the student's approach; did he ask the proper questions? How was his general acceptance and ease? This consists of a type of group process with all students evaluating each other freely. During the second stage the student attempts to understand "the world of the sick person" in terms of how his ideas, viewpoints, and relationships are affected by the illness and what are the feelings of the sick towards the hospital and all of the processes and experiences connected with his stay. During the third stage, the accent is on the relationship between the illness and the history of the patient. All students have the opportunity of interviewing patients with a variety of ailments to provide a more general picture of the situations.

In response to a question concerning the status of psychology in Peru, Dr. Seguin stressed that the greatest interest among students lay in the area of clinical psychology. The discipline as such is rather young in Peru and was previously taught in the school of philosophy. It appears that the universities in Peru are in a transition period and are heavily politically oriented, a factor which seems to have retarded a progressive forward movement.

Seguin is presently Director of the Instituto Peruano de Estudios Psiquiatrico-Sociales, the Institute for Psycho-Sociopsychiatric Studies. The group merges the talents of anthropologists, sociologists, psychologists, and psychiatrists in studying problems related to social psychiatry. The work with which the Institute is presently most heavily involved is folk-lore psychiatry. Seguin carefully drew a distinction between folk-lore psychiatry and etlino-psychiatry, stating that whereas the latter studies practices accepted by the cultures in which they appear and are highly respected, folk-lore psychiatry is generally contrary to the legal and accepted code of the culture from which it emerges. It is practiced by curanderos or healers, and these individuals are found almost all over the world. They are not quacks or fakers, being completely dedicated and convinced of their curative powers. There is a village in the northern section of Peru wherein every third individual is a curandero; Seguin jokingly referring to it as the Mayo Clinic of folk-lore psychiatry. Apparently many well educated individuals, including doctors, lawyers, teachers, and other professionals, avail themselves of these services, and it appears that the efforts of the healers frequently result in cures. Cited was a case of a group of confirmed chronic alcoholics who were treated many years ago and have been successful in resisting alcohol ever since. Apparently there are enough such cures to warrant the interest of the Institute, which sent a team of anthropologists, psychiatrists, and psychologists to study the whole process. They have been able to take clinical histories of some of the patients and have also administered psychological tests to the healers. Many publications have been written by the members of the staff on their findings.

In a related area, the Institute is studying the healing practices of the group of practitioners who use native drugs to heighten their powers. Some of these individuals operate in the village of Iquitos, located in the Amazon in the northwest part of Peru. The drug which they use is an extract of a

plant whose principal component is harmine, a crystaline alkaloid somewhat similar to mescaline. The members of the Institute team spent two years in Iquitos and also partook of the drugs, reporting some remarkable reactions. Having gained the confidence of a local healer, they were permitted to film the entire action, that is, the gathering of the plants, preparation of the drug, and the healing ceremony complete with singing and chanting. The practitioner claims that under the influence of this drug, he can not only heal, but is able to perform miraculous deeds such as finding lost objects, determining guilt or innocence, etc. An American anthropologist who participated in this study is presently writing a book covering the experience.

Support for the Institute has previously come from the University of San Marcos with most from the Foundation Fund for Research in Psychiatry of the United States. Unfortunately, this latter fund has been affected by the general research fund shortage, and the Institute is operating on very limited support at present. At the time of this interview, Dr. Seguin was preparing a report of his findings on folk-lore psychiatry to deliver to the International Congress of Psychotherapists at Oslo.

ARGENTINA

The Centro Interdisciplinario de Investigaciones en Psicologia, Matematica y Experimental (Interdisciplinary Center for Research in Mathematical and Experimental Psychology) is unique in two ways. It engages in research that is not frequently found in Latin America, and it is situated in an unlikely environment on grounds that are parklike, containing lush and exotic foliage and plants. The small city block in Buenos Aires on which the laboratory is located was formerly the estate of a collector of botanical rarities and the property was willed to the University of Buenos Aires upon his demise. Dr. Horacio Rimoldi, the Director, received his medical degree in Argentina, having worked for five years with Dr. Houssay, a Nobel Laureate in physiology. Following upon a keen interest in psychology, Dr. Rimoldi became associated with the Spearman School and spent three years in London and at Oxford University. Returning to Argentina, he founded the first laboratory of experimental psychology at the University of Cuyo, where he served as Professor of Psychology and General Biology and carried out research in testing in relation to educational problems. In 1946 he became a Guggenheim Fellow and Visiting Research Professor at the University of Chicago. A year at Harvard followed, where he worked with Allport and Boring, after which he returned to Chicago, obtaining his Ph.D. under Thurstone. After an 18 month period during which he established a laboratory at the University of Montevideo, Uruguay, Rimoldi joined the Educational Testing Service at Princeton, where he remained for about a year and a half. Returning again to the academic environment, he spent eighteen months in the Examiner's Office of the University of Chicago before settling down at Loyola University, where he served for some 15 years as Professor of Psychology, Director of the Psychometric Laboratory, Director of the Measurements Program, and Director of the Parmly Hearing Institute.

In 1970 the National Research Council of Argentina, whose President was Dr. Houssay, appointed Rimoldi to the highest echelon of Career Investigator, hoping to entice him to return to Argentina. He agreed on the provisio that he be supported in establishing an interdisciplinary center which would do research and post-graduate teaching. It was and is his intention to train researchers and professionals who in turn would enter the departments of psychology of various universities to teach the incoming students. He returned to Argentina with the dual appointment as Director of the Center and Professor of Mathematical Psychology at the university. His appointment as Director is for a ten year tenure and in this post he is responsible to the School of Sciences and the National Research Council of Argentina, who are the primary sources of his support.

He has developed and organized the Center so that it will continue to expand and survive regardless of what administrative changes might occur. The operating and housekeeping problems have been delegated to others, leaving Rimoldi relatively free to pursue his professional interest. A library is in process, the present collection consisting of some 50 journals, and this is expected to expand rapidly. The staff of 30 includes the scientific personnel, who are divided into two groups, the research staff and the technical supporting personnel. Scientific disciplines represented include psychology, sociology, medicine, mathematics, and education. Most staff are full-time employees but some also teach at the universities. In addition, there are visiting scholars who are Fellows of the National Research Council. At the time of this visit there were two foreign scientists at the Institute both former students of Rimoldi.

Since its inception in 1970, the Center has given post-graduate courses in such subjects as matrix algebra, scaling, theory of functions, projective techniques, physiological psychology, and Rimoldi has taught a complex course on probabilistic theory and experimental design. A course in factor analysis was about to begin. It was pointed out that these courses are tailored to the needs of the trainee so that even partially heterogeneous groups will progress at the same level. The teaching is such that all students must achieve a certain plateau before the course proceeds beyond.

As to research areas, one of the primary interests is the study of cognitive processes. This is a logical extension of Rimoldi's previous work on problem solving in developing medical diagnostic scales for use with individuals of all ages. Most of the present effort concerns mathematical ability and the research is directed towards studying two separate groups of children: preschool from ages 3 to 6, and those above age 7. The idea is to determine how mathematical concepts originate and develop. Considerable work has been done on scaling, with some four studies completed and others continuing. A heavy emphasis is on problems of conditional probability in relation to scaling and statistical independence. Another substantial effort is being developed in the area of medical education. Together with Dr. John Haley of the University of Kentucky and Dr. J. Erdmann of the Association of American Medical Colleges, Rimoldi has designed an elaborate project which

is basically a comparative study of medical students and medical education in the United States and Argentina. They are interested in the relatively little explored post pre-medical period, that is, when the students enter the clinics as trainees. A test of pre-medical knowledge has been developed to provide background data and this has been administered to medical students in Buenos Aires. It will be translated and used in several medical schools in the United States. R moldi points out that there are several instruments widely used to evaluate potential medical students, but none which adequately tests their potential at the crucial time of entrance into the medical education itself.

In its final stages is a book on perceptual and personality correlates of problem solving, which will likely be published in the United States and which summarizes research supported by a grant from the State of Illinois. Work with deaf children begun in Chicago is being continued and expanded in Argentina with the development of testing instruments and procedures. In a somewhat related area, the Center is interested in the problems of language and its relationship to problem-solving performance. Another project comparing individuals in Argentina and the United States concentrates on adolescents. Numerous scales and questionnaires have been translated into Spanish so that the same tests could be used with both populations. Interestingly enough a preliminary survey of the data indicates that on social concepts and primary mental abilities there were only minor differences between the two groups.

A tour of the laboratory itself supported Dr. Rimoldi's assertion that it is well planned and equipped. With the exception of computer requirements, it is a fairly self-contained unit. They hope to acquire a time-sharing system to tie into a future computer at the School of Sciences, but in the meantime they have access to the computing center of the Medical School and that of the Navy. Responsibility for the laboratory is shared so that the University School of Sciences provides buildings and maintenance while the equipment, library, and support for scientific personnel depend on the National Research Council.

Dr. Rimoldi feels that a new approach is needed in measuring intelligence, one which presents problems based on logical structures provided in different language forms, e.g., drawings, verbal, colors, objects. He feels that the basic scoring must be in terms of the logic and tactics used by the individual, rather than simply on whether a response is right or wrong. He traces his interest in measures of intelligence to his period of association with Thurstone at the University of Chicago. Over time he became more and more disenchanted with mere statistics or even factor analysis as procedures, asserting that what was wrong years ago might well be correct today, this being one shortcoming of present scoring practices. It has been his contention that there must be more to the area of intelligence and that this something more is the mental process used by an individual in solving a problem. For the medical profession he has developed a technique for evaluating diagnostic skills wherein the physician or medical student is provided with a case and

must ask whatever questions he feels will lead to a proper diagnosis. The series of questions is regarded as a tactic and can be studied to determine what hypotheses emerged and in what manner they were accepted or rejected.

In a similar approach, they have studied mathematical problems that were built on well known theorems, for example the Pythagorean Theorem and Newton's Binomial and these were presented to elementary and high school students. The subjects were given problems and had to ask questions to seek a solution. As Rimoldi says, it is possible to develop problems which lead to very specific logical solution systems and these can be presented in different language forms, verbally, symbolically, etc. They have been exploring the differences that languages and logical structure produce by experimenting with subjects between ages 7 and 85. Judgements are made and scoring is based upon the logic of the tactical approach and in this way a score is achieved to which traditional statistical treatments can be applied.

The Department of Psychology at the University of Buenos Aires was established in 1956 and Dra. Nuria Cortada de Kohan joined the faculty as Head of the Department of Statistics. Dra. Kohan had attended Ohio State University on a fellowship and, while there studying clinical psychology, developed a strong interest in psychometrics. Upon return to her native Argentina, she began doing research in measurement, and in 1958 became Director of the Department of Vocational Guidance, established to provide counseling and advice to the students of the university. In 1961 she returned to the United States where she spent a year as senior psychologist at the Saint Lawrence State Hospital. Returning again to Argentina, she found that her work in test standardization was severely hampered by a lack of research funds and she ultimately took up her former position as professor of statistics. Much of her work had been directed towards the standardization of U.S. tests for Argentinians, which led her into the field of test construction. She was awarded a fellowship to the Educational Testing Service in Princeton and has subsequently developed a number of instruments used in evaluating applicants for entrance to the university. Dra. Kohan has been something of a pioneer in training other psychologists and has established a team of researchers to work with her in developing new tests of aptitude for various groups in Argentina.

In retrospect Dra. Kohan expressed the feeling that her best work was done in the Department of Vocational Guidance where she had the opportunity of counseling students on career choice. It was revealing to her in that most students of psychology had extremely narrow concepts of the field, regarding it as a fundamentally clinical discipline. It appeared to her that most who sought to enter psychology were really interested in medicine, with practically no awareness that statistics and experimental design were basic components in psychological training. In any event, she managed to surround herself with a small cadre of unusual students, training and working with them in developing the program which has ultimately resulted in the standardization of most of the tests presently in use in Argentina. Many of these individuals who started with her went on to establish their own programs in various universities.

After leaving as Director of Vocational Guidance, Kohan went more deeply into research, being particularly interested in determining why capable and intelligent students drop out, and this interest has persisted. It appears that she has a basic concern with studying human intelligence, attitudes and motivations. Last year, working on a grant from the university, she undertook a study on attitudes of people towards sociology and psychology and was startled to discover that even the students of sociology had little grasp of their major subject. Responses to an attitude scale showed that their awareness of research aspects or even the subject matter of sociology was very low. Few of them could adequately justify their having selected the field for study, and Kohan attributes their haziness about their future plans to this fact. As to the students of psychology, their motivations were more evident; most sought to gain insights into their own personality structures.

In the past few years, her primary preoccupation has been with attitude scaling and she has been active in developing several attitude measurement instruments for a variety of variables. An example is the scale which has been used in Argentina and other Latin American countries to evaluate the Latin male characteristic of "machismo." This scale and the Holtzman Technique have been used by Kohan to compare the trait with other personality characteristics on samples of factory workers and university students. At the time of this interview, she was working on the construction of Thurstone-type attitude scales to compare the effects of age differences on attitudes towards occupational interests. Also in process was a book on attitude measurement, which is expected to fill a vital gap in the sparse Spanish literature on the subject. Her two published books, *Estadistica aplicada a la Psicologia,* written in 1962, and *Manual para la construccion de pruebas objectivas de rendimiento,* published in 1968, are widely used tests.

According to Dra. Kohan and consistent with other information, clinical psychology has attracted most career psychologists, but she sees a stirring of interest in other areas, particularly in psychometrics, experimental, and social psychology. It is regarded by her as a healthy sign that the discipline may now begin to grow and become somewhat more research oriented.

BRAZIL

Dr. Arrigo Leonardo Angelini is Professor and Director of the Institute of Psychology at the University of São Paulo. At the time of this visit, he was outgoing President of the Interamerican Society of Psychology, having just completed the arduous task of planning and chairing the 14th Interamerican Congress of Psychology held in São Paulo. Angelini received his schooling at the University of São Paulo, doing his graduate work in education, there being no advanced courses in psychology at that time. The tradition of psychology in Brazil stems from education, and the actual program of psychological studies as a separate discipline started around 1957 in the School of Liberal Arts. In recent years the university has been reformed and modernized and in 1970 the Institute of Psychology was founded with Angelini as Director. Brazil was the first counrty in South America to legally recognize

psychology as a profession (1962), and this has resulted in an expansion of both educational training and employment opportunity. The student interest has burgeoned ... educational institutions, hospitals, mental health centers and some industries have recently begun to recognize the benefits of staffing psychologists to assist in the human problems of selection, vocational guidance, industrial planning, education, and such.

The Institute of Psychology issues undergraduate degrees after five years of training and selected students may go on for the M.A. The five year undergraduate diploma allows the individual to practice as a psychologist under the 1962 law. New courses leading to the Ph.D. have been established at the Institute, which ranks with other basic university units such as the Schools of Law, Medicine, Engineering, etc. There are four Departments at the institute: developmental, learning and personality; experimental; clinical; and industrial and social. The field of greatest interest among the incoming students is clinical, which Angelini attributes to the fact that this is the popular image of the psychologist, particularly to the young. However, once the students have been exposed to the various lesser known applications and research possibilities offered in psychology, some change and enter other applied fields. São Paulo, recognized as the center of a great industrial complex, has failed to achieve the expected level of interest in industrial and social psychology, though this appears to be growing.

As noted earlier, Angelini started as an educational psychologist and has done research in learning, vocational interest, motivation, and personality, and his current research interest is in the field of cross-cultural psychology. He is presently involved with an international project sponsored by the United States Office of Education. This study, in its final phase, was started in 1965 and is being undertaken simultaneously in eight countries: the United States, Brazil, Mexico, Germany, Italy, England, Japan, and Yugoslavia. The project deals with the behavior of children and adolescents in the social variables that exist in any society or community including such factors as the child's reactions to aggression, anxiety and authority and his interpersonal relations with peers and adults. The complex study, using children in elementary and secondary schools, has employed a variety of psychometric and projective instruments and school records, as well as interviews with parents. Eight hundred children from each country were used as subjects in a 2 X 2 X 2 design, the parameters being age by sex by social class. The entire project is under the supervision of Professor Robert F. Peck of the University of Texas, to whom all data are sent for analysis. The principal investigator for each country will write a report covering his data and the final report will coordinate all of the findings. This final report will provide information on how children from the various countries react to a variety of stimuli and situations.

In some earlier cross-cultural research Angelini had collaborated with Dr. David C. McClelland of Harvard in comparing the reactions of Brazilian college students with those of their peers from the United States by administering McClelland's form of the TAT involving achievement motivation.

It was found that there was no significant difference between the males, but a striking difference emerged between the females with the Brazilian girls much more achievement oriented. Angelini explains this in terms of cultural differences. Unlike the United States, at the time the study was done (1956), the university populations in Brazil were almost exclusively male. Women were considered to be homemakers and those who aspired to professional careers were regarded as being peculiarly masculine types. Those who achieved admission to the universities were highly motivated, somewhat aggressive (or at least persevering), and very bright. It appears that the entrance examinations were designed to eliminate all but the top level students. The situation today in terms of competitiveness is very similar, though the sex barrier no longer exists. Angelini used the University of São Paulo as an example, asserting that it is very difficult to achieve admission. In the Institute of Psychology which admits only 70 students annually, there are about 2000 applications.

In keeping with the increasing demand, additional schools, both public and private, are being established. Somewhat unlike the United States, the government schools are invariably superior to the private ones, a situation which Angelini explains in terms of the profit motive. The private schools are generally set up to make money, whereas the state schools are budgeted by the government for superior education.

The point was raised about the particular problem of psychology and the availability of research support. On the one hand, psychology has attracted a great deal of interest as a career and there are many positions available. As stated earlier, although industry has not been completely receptive, some jobs are opening in business and large merchandising firms. In the hierarchy of research support psychology is low. Most of the funds available through the universities go to the hard sciences with the balance being allocated to the biological sciences. The Brazilian National Council for Research has no program in the social sciences and this likewise holds true for the World Development Bank, which supplies funds for university research. Angelini attributes this to the fact that psychology is just emerging as an important discipline and he expects the picture to brighten in the near future. As an indicator of things to come he cited the fact that some international foundations have started to provide scholarship funds in the social sciences to establish foreign programs so that students can go to other countries to earn advanced degrees for higher level specialization. A former student of his has recently been successful in acquiring a Ford Foundation grant to study in England.

In response to a question as to the relative role of Brazilian psychology in South America, Angelini feels that it has and will play a leading part in the advancement of the science in the continent. He pointed to the fact that as a legally recognized discipline it commands considerable respect and has achieved a high level of prestige in the professional and general community. Despite the lack of research support, a substantial amount of research is carried out in the universities of Brazil. For example, in the Ph.D. programs

alone there were 46 theses completed in 1972, probably some sort of record for South America. As he indicated, there are viable programs being carried out in many educational centers in the country. Angelini cited the recently held 14th Interamerican Congress which was literally flooded with students who jammed the sessions to learn what was happening in psychology.

As to the direction of psychology in Brazil, Angelini reiterated the fact that clinical psychology maintains a leading position, asserting that many practitioners are involved in establishing new trends and techniques in psychotherapy. There is, however, a mild blossoming of enthusiasm in applied social and industrial psychology. Areas of particular interest are noted applying the approaches of psychology to improving the conditions of man at work and to the problems of overpopulation, pollution control, and city planning. An example of the latter need is the situation in São Paulo, where the city has passed an ordinance to ban any additional skyscrapers and to concentrate on developing new sections, new types of housing, in fact, new communities. It is Angelini's feeling that the knowledge and expertise of psychologists will be called upon and can serve well in solving many of the social problems that are inherent in the impending changes.

The time of the visit to São Paulo was set to correspond with the 14th Interamerican Congress of Psychology. In general, the tenor of the papers and symposia reflected the overriding interest in clinical psychology in Latin America, which was further evidenced by the attendance dispersion. Another significant feature of the Congress was the multitude of students who flooded into the meeting rooms, an indication of the swelling interest among undergraduates.

One day of the meeting was given over to a field trip wherein attendees visited some school, institution, or industrial site where there was psychological activity in process. The writer selected the Brazilian Railroad Center to learn about the selection procedures for screening prospective applicants for railroad positions. The host at the Center was Dr. Antonio Carelli, a psychologist who studied at the University of Minnesota and whose wife, also a psychologist, is employed by the São Paulo Police Department.

The Brazilian Railroad Center is an agency of a consortium of five railroads with some 30,000 employees. It is largely government owned and operated, being under the control of the state government. The Division for Test Design and Standardization has done pioneer work in industrial psychology in Brazil, having started with a selection program for steam engineers, presently working with the men who drive diesel and electric locomotives. Using the data generated during the early work, Carelli and his associates have developed a battery which includes testing for such variables as depth perception, reaction time, personality, achievement, and aggressiveness. Carelli spoke of some of the difficulties encountered in the program: the problems of evaluating the large numbers of applicants with limited resources and space, need for additional equipment, standardization of tests on the subject population, difficulties in measuring such variables as attention and vigilance, and most of all, how to determine the validity of the battery. Carelli

demonstrated a single test which uses a tachistoscopic presentation to measure visual memory, visual discrimination, recognition, and attention span. In addition to these measures, demographic and biographical data are used to predict performance.

Carelli presented an abstract of his doctoral dissertation, wherein he used item analysis to explore the use of psychological inventories in developing empirical keys to predict on-the-job performance of railroad station masters using supervisor's judgments as criteria. Another objective of his research aimed at the use of psychological inventory items to develop moderator variables to improve the effectiveness of the empirical keys as predictive agents. On the basis of his findings, Carelli was able to confirm the possibility of developing efficient empirical keys and moderator variables.

A brief meeting was held between sessions of the Interamerican Congress with Dr. Samuel Pfromm Netto, a professor at the University of São Paulo. He also heads the Educational Division of an organization (Fundacao Padre Anchieta) which carries out research and develops programs for educational television and radio. This is a large operation which will provide a training program geared to the needs of a particular group or industry. For example, Dr. Pfromm has developed and carried out a project for training executives and cashiers of the Bank of Brazil using an approach which relies upon simulators and multimedia. He has also designed and built simulators for training quality control inspectors for the Olivetti Corporation. In process at the time of this meeting was a training course in business administration utilizing closed circuit television and printed handouts. The organization network is linked to some 300 industries who subscribe to the educational television service, each being addressed to the particular need. In addition to special courses, subscribers have available a general program which will enable the participants to achieve a high school diploma.

URUGUAY

Professor Jacobo Varela is spending a year away from his native Uruguay and at the time of this interview was a visiting Professor of Social Technology at the New School in New York. Educated as a civil engineer, Varela studied at Princeton and returned to Uruguay to work as an industrial consultant. His interest in human behavior stems from an early awareness of the recurring conflicts that arise, not only interpersonally, but within organizations. Trained to the presumably rigid concepts of engineering, he noted that in practice it was far from an exact discipline. As an example of this, he cited soil mechanics and how important precise information is for those constructing large buildings. As he expressed it, large buildings are all too frequently erected on very flimsy intelligence concerning the bearing capacity of the soil on which they are constructed. In laying the groundwork for his present interest as an engineer turned social scientist, Varela defined technology as the putting together of findings to produce a usable product. An example was given of the telephone which is an ingenious combination

of various research findings. In a recent book review he announced the second law of serendipity, which states that if you wish to make an improved product, you must already be engaged in making an inferior one. (The first law states that in order to discover anything, one must be looking for something.)

In any event, it is his contention that it was through the application of these two laws that he has evolved the concept of "social technology," his name for a method of intervention in personal interrelations that combines findings from many areas of the social sciences in order to solve a wide variety of social problems including conflict. The basic push in this direction came through the recognition of a common element which Varela noted in his career as an industrial engineering consultant, wherein the solutions proposed for resolution of discord and friction among individuals were antiquated and unsuccessful. Many years earlier he had been exposed to psychology and he had seen how Thurstone's scales could be used as rough indicators of success at a job. In time, after much exposure to organizational problems, he became convinced that there were more fruitful approaches possible and in 1954 he essentially abandoned engineering and embarked full time on a career of developing social technology.

Varela calls himself a social technologist and it is his contention that predictions of human behavior based upon principles developed in the social sciences may often be superior to those of engineering. He states, for example, that predictions of intervention in cases of conflict resolution may be more accurate than judgments of the breaking strength of a reinforced concrete beam. In his book, *Psychological Solutions to Social Problems*, Varela details the approaches developed by him for resolving many types of intraorganizational problems and interpersonal conflict. He considers it pertinent to point out that the ultimate text which he writes on this subject will logically be entitled simply "Social Technology." As stated, the substance of his work is the improvement of human relations in general in order to promote human welfare and Varela provided an overview of his tactics. Conflict may be of long standing and generally results in an organization being split into two widely divergent groups with a third group of neutrals. The two opposing forces are constantly trying to win over the neutrals in order to achieve a majority, a situation that is highly disruptive not only to the organization, but also to the individuals involved. The basis for Varela's intervention is to guide the contending individuals in seeking a common understanding. This is done by means of liberal use of findings derived from the social sciences. First is the diagnostic phase, wherein a variety of personality and evaluative instruments are used to assess the make-up of the individuals concerned, paying particular heed to such traits as degree of authoritarianism and many others. Then comes the design phase, during which period action is planned based upon the data developed during the earlier stage and other social science findings. Varela promotes interviews with the contending parties, receiving commitments from them as to areas of possible agreement, and setting a schedule of what will take place, when, and with whom. The basic approach

appears to seek a common ground of agreement rather than a compromise, that is, neither party yields to the other, but together they are able to develop social support for some mutually acceptable agreement. The schedule is critical to the success of the program, and Varela has found that for some of the organizational conflicts at which he worked, a 15 day period of interaction was about optimum.

He emphasized that this approach is opposed to sensitivity training as there is no attempt to affect changes in individuals; instead it respects and accepts them as they are. One primary task of the intervener (my word) in the situation is to see to it that the parties approach each other on a less emotional and more rational plane. In his experience it is frequently astonishing to see the ingenious solutions that participants are able to develop under such conditions.

His course of instruction at the New School was directed at providing the students with information on how to apply social technology to solving problems in social situations. His approach is to develop confidence in social theory by stressing that though new findings may emerge, they must work with the best that is available at the time. The course requires the students to individually find a real world problem, design a plan for solving it, and then apply the plan in an actual situation. There are no examinations and the students are evaluated on their projects. Varela explained the shortcomings of a one semester course which can essentially only introduce what he believes would take three years of training to perfect. He reviewed some of the projects undertaken by his students, which ranged from resolving two-person conflict to convincing a militant group of individuals to change their views. It is notable that of the 69 students involved, only one selected a project which has a self serving aim.

In a response to a question concerning the research aspects of his work, Varela responded that his applications are strictly applied. It is his feeling that there is an imbalance between professionals that are scientist researchers and those who seek to apply those findings as technicians. He further contends that with the pressures of academia on research, numerous individuals who might develop into excellent technicians are forced to become poor researchers. He feels that in psychology there should be four different types of activities. The first is unguided research where very gifted individuals should be permitted to engage in any form of exploration without regard for results or value. Next is the technological effort applied by individuals like himself, those who seek to solve pressing and important problems using the best technology available. These technicians should refuse to allow less than perfect approaches from hampering their efforts to do the best that they can with what they have. The third group are the practical researchers who would be the recipients of feedback from the appliers. They would tackle research which is obviously relevant to the solution of specific current problems. Finally is the area of field research, from whence would come insights useful to colleagues of all persuasions.

Varela's work is not without its critics. He told of a lecture which he gave at Cornell during which he mentioned an historical incident. The ancient Egyptians knew only of the Nile, which flows north. During an expedition to Syria they crossed the Euphrates, which flows south, a phenomenon which confounded them. So when Varela noted that his lecture at Cornell was well received, he expressed his appreciation to the listeners who were willing to take a journey down the river that flows the wrong way. Much of the doubt concerning the methodology is countered by his firm, and repeated conviction, that any cure is better than nothing, and this philosis drilled into his students. They are also encouraged to improve upon his methods, an approach which he feels promotes creativity.

Varela talked about the state of social psychology in South America, and here too he is apparently considered by some to be a nonconformist. Some time ago he had been contacted by Dr. Leon Festinger, President of the Committee of Transnational Social Psychology, to serve in promoting social psychology in Latin America. He considers this to be a long-range and difficult process, with relatively few interested participants in the countries involved. Therefore it is his opinion that the emphasis should be on the provision of services, concentrating on applying whatever energies are available to address the problems of mismanagement, poverty, and suffering that are rampant in much of Latin America. Apparently this approach has proven to be sucessful at least in a limited way in Uruguay.

In response to questions concerning his book on social technology, Varela outlines therein his paradigms for solving social problems. He originally set about detailing his approaches by putting forth principles and providing examples, but reversed the process and ended up narrating examples and then citing the principles. Each chapter has a heading or quote to illustrate the contents, for example in one which deals with the problem of promoting someone within an organization without leaving an aftermath of jealousy and discontent, he quotes Louis XIV who said, "Every time I make an appointment I create 10 malcontents and one ingrate." Stressed above all by Varela in his teaching and training of social technicians was the subject matter to be presented the evening of this interview: the precept that above all the social technician must be guided by the adherence to rigorous ethical standards and high respect for the individual.

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